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Astronomical Society when the stars occur there. For other stars the precessions are computed from the following formulæ :—

$$\text{R.A.} = +3^{s}{\cdot}068 + 1^{s}{\cdot}3362 \times \sin \text{R.A.} \times \text{cotan N.P.D.}$$
$$\text{N.P.D.} = -20''{\cdot}043 \times \cos \text{R.A.}$$

The observations of the sun, moon, and planets, present no peculiar difficulty, as the instrumental corrections were already determined ; the observations are treated nearly as such observations are treated in the Greenwich Volumes.

The North Polar Distances of the Comet of 1830* are given as computed by Mr. Fallows with index-errors concluded from observations of *α Orionis* and *α Hydri.* Refraction is applied, but not parallax. Some additional observations were made of this Comet with an altitude and azimuth circle, and some measures of the distance of the cusps in the Solar Eclipse in the same year. These are not reduced, as some essential explanations are wanting.

A Method of Correcting the Errors due to the Forms of the Pivots of a Transit Instrument. By Professor Challis.

The method proposed by the author requires the solution of the following problem :—Having drawn from a selected point of the middle wire of the telescope, situated near where the transits are usually taken, a straight line to the optical centre of the object-glass, it is required to find, independently of the forms of the pivots, the small angle made by this line with the plane of the meridian for any position of the telescope. The solution of this problem may be effected by employing Bohnenberger's collimating eye-piece, in conjunction with the method of measuring by micrometer-microscopes the positions of two dots at the extremities of the pivots, first suggested by the Astronomer Royal and applied by him in testing the forms of the pivots of the new altitude and azimuth instrument at the Greenwich Observatory. The collimating eye-piece gives the angle (α) which the line of collimation makes with the meridian plane when the telescope is directed to the nadir. If y_1 y_2 be the vertical microscope readings for bisections of the dots in this position of the telescope, y'_1 y'_2 be the vertical microscope readings, and x'_1 x'_2 the horizontal microscope readings for bisections of the dots, when the telescope is pointed to an angular distance, z, from the zenith southward, and ξ be the small angle required, then

$$\xi = \alpha + \frac{y_2 + k - y_1}{\text{D}} + \frac{y'_2 + k - y'_1}{\text{D}} \cos z + \frac{x'_1 - x'_2 - h}{\text{D}} \sin z,$$

D being the distance between the dots, and h and k certain constants, by means of which the readings of the two microscopes are

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* Some particulars of this Comet will be found in the *Astronomische Nachrichten,* N. 183 ; vol. viii. p. 300.

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referred to the same vertical and horizontal planes. The constant k is found by measuring the difference of altitude of the dots in reversed positions of the instrument, the telescope being directed to the nadir, and at the same time noting by the collimating eye-piece the change of inclination of the line of collimation to the vertical caused by the reversion. The correction to be applied to an observed time of transit across the middle wire to reduce it to the time of meridian transit is $\frac{\xi}{15} \times \text{cosec N.P.D.}$ Hence, h may be found by two consecutive transits of *Polaris.* These constants being known, the angle ξ may be calculated for zenith distances separated by intervals of 5°, and extending from $-90°$ to $+90°$. The differences between these values of ξ and the values of the same angle which would be obtained *at the same time*, in the usual manner, on the supposition that the pivots are perfectly cylindrical, are certain functions of z, which may be assumed to remain constant throughout the year. A table of these differences multiplied by $\frac{\text{cosec N.P.D.}}{15}$ being formed, in which the argument is the north polar distance, any observed time of transit is first to be corrected by a quantity derived by interpolation from this table, and then the remaining reduction to meridian transit may be effected, by obtaining the collimation, level, and azimuth errors, and applying corrections on account of them, by the ordinary processes.

Capt. Charles Shea, H.C.S. has forwarded three diagrams of the configuration of *Jupiter* and the moon at his near appulse on December 7, 1849. The view was taken with a 3-foot telescope by Leary, *not mounted.*

ERRATA.

Mr. Lowe sends the following erratum in the last *Notice*:—

Page 23, line 11, *for* August 19 *read* August 10.

Mr. Gray forwards the following errata in Shortrede's antilogarithmic table :—

Log.^{-1}	·62163		4399		4369
	·79689	*for*	4512	*read*	4552
	·92052		7683		7603

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